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NEON TUBE AND ELECTRODE HOLDER

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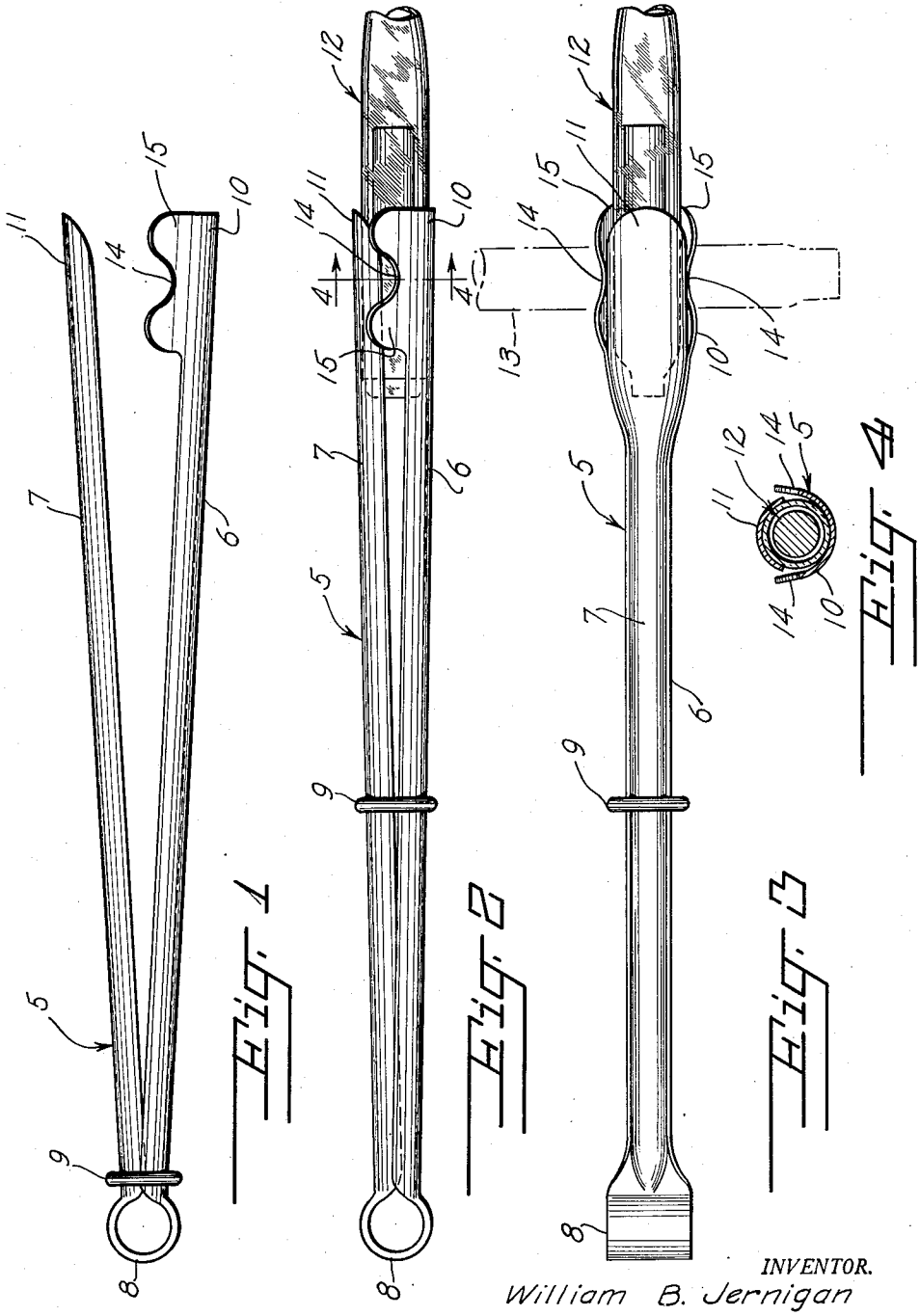


Fig. 1

Fig. 2

Fig. 3

Fig. 4

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NEON TUBE AND ELECTRODE HOLDER

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4 Claims. (Cl. 294—99)

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This invention relates to a manual gripping and handling tool for manipulating glass tubes and the like, and particularly to a manual neon tube and electrode holder for handling the latter under heat without burning the hands.

The main object of the invention is to provide a manual tube and electrode holder by which a workman is enabled to grip a neon tube or tubulated electrode for exposing the tube or electrode to heating and fusing operations in convenient manner.

Another object is to provide a holding tool of the character indicated which serves for handling various sizes of tubes and electrodes.

A further object is to have such a holding tool by which it is possible to hold tubes and electrodes longitudinally or transversely at will, as may be required due to special equipment thereon.

It is also an object to facilitate working with heated tubes and the like and lower the cost of manufacturing neon signs and ornamental structures made of glass tubing.

Other objects and advantages will appear in further detail as the specification proceeds.

In order to disclose comprehensively the features of the invention, the latter is illustrated on the accompanying drawing forming part hereof, and in which:

Figure 1 is a side elevation of a neon tube and electrode holder embodying the invention in a practical form, the holder being shown in open condition ready for use;

Figure 2 is another side elevation of the same holder when gripping a tubulated electrode in longitudinal position;

Figure 3 is a plan view of the device as seen from the top in Figure 2;

Figure 4 is a transverse section taken on the line 4—4 of Figure 2.

In the four views, the same reference numerals indicate the same parts.

In shops making neon and fluorescent tube signs and ornamental tubular structures of various types, glass tubing is cut and heated to fuse and bend the tubing in various ways and to fuse in tubulated electrodes into the ends of the tubes. Many expedients have been resorted to from time to time for holding and handling such tubes and electrodes, and each shop has its own makeshifts for the purpose, but nothing useful appears to have been universally adopted, and thus practice in this regard is still not uniform, or any too satisfactory. On the other hand, it is quite feasible to have convenient means for freely handling glass tubing and electrodes, even when close to the flame and considerably heated thereby, and

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manipulating such parts when bending and/or fusing the same, as will be immediately set forth.

Hence, in the practice of my invention, and referring now again to the accompanying drawing, the holding tool, substantially made in the form of a pair of clamping tongs, is generally indicated at 5 and mainly consists of a pair of transversely-arcuate or semi-tubular, elongated tong members 6 and 7 which are integrally joined at their rear portions by a resilient integral loop 8, while a clamping ring 9 is slidable along the tong members to follow up whatever closing movement has been performed by the latter during use. The lower tong member 6 terminates in a relatively wide hollow jaw 10, and the upper tong member 7 similarly terminates in a relatively narrow jaw 11. Each jaw is formed arcuately about a different radius, the first jaw 10 about a greater radius and the other jaw 11 about a shorter radius. The result is that the lower wider jaw readily fits a tubulated electrode generally indicated at 12, while the upper jaw will be centered on the same electrode 12, but will actually fit a neon tube of smaller diameter than said electrode.

However, not all manipulations are conveniently performed with a tube projecting directly forward from the holder, as shown in Figures 2 and 3. Instead, certain handling of the tube members is best performed when the tube or the like is transversely disposed, as indicated at 13 in Figure 3, and in order to equip the holder for holding the tube in such transverse position in addition to the capacity thereof, as already described, the lower jaw 10 of member 6 is intermediately recessed at 14, 14 in cheeks 15, 15 at the sides thereof to provide seats for accommodating the tubes or electrodes in such transverse positions. The upper jaw 11 need not be changed or modified for such gripping of the tubes, as the recessed cheeks of the lower jaw suffice to determine such holding position and jaw 11 then serving to clamp the tube involved in place. When the jaws are fitted upon a tube or electrode, drawing up the ring 9 toward the jaws will set the latter to hold until it is deliberately released by drawing it down toward the other ends of the tong members so as to separate the jaws.

Of course, if desired, the recessed cheek portions of the lower jaw may be made separately as plates which are bent and applied by riveting, brazing or welding the same into the lower jaw, but it is preferred to have the jaws and their appurtenances integrally formed of sheet metal substantially as shown and already described.

Manifestly, variations may be resorted to and

parts and features may be modified or used without others within the scope of the appended claims.

Having now fully described my invention, I claim:

1. A holder for cylindrical neon tubes or the like, said holder comprising a pair of longitudinally elongated coextensive jaws, having facing concavities of semi-circular cross section extending therealong, spring means connected to and between the rear ends of said jaws and normally spreading said jaws, the concavity of one of said jaws being sufficiently small in diameter to fit the smallest diameter tube or the like to be held and the concavity of the other jaw being larger in diameter than the concavity of said one jaw and sufficiently large in diameter to fit the largest diameter tube to be held, and means embracing said jaws and slidable forwardly therealong to contract said jaws to hold a neon tube or the like lengthwise therebetween with said concavities engaging diametrically opposite sides of the tube or the like.

2. A holder for cylindrical neon tubes or the like, said holder comprising a pair of longitudinally elongated coextensive jaws, having facing concavities of semi-circular cross section extending therealong, spring means connected to and between the rear ends of said jaws and normally spreading said jaws, the concavity of one of said jaws being sufficiently small in diameter to fit the smallest diameter tube or the like to be held and the concavity of the other jaw being larger in diameter than the concavity of said one jaw and sufficiently large in diameter to fit the largest diameter tube to be held, and means embracing said jaws and slidable forwardly therealong to contract said jaws to hold a neon tube or the like lengthwise therebetween with said concavities engaging diametrically opposite sides of the tube or the like, a forward end portion of said other jaw having extensions on its longitudinal edges continuous with opposite sides of its concavity providing circumferentially extending cheeks reaching laterally beyond the remainder of the longitudinal edges of said other jaw in the direction of said one jaw, said cheeks being formed in their outer edges with rounded notches to receive a neon tube or the like crosswise of the jaws with the said one jaw holding the tube in the notches when the jaws are contracted.

3. A holder for neon tubes or the like, comprising a pair of longitudinally elongated coextensive handles, spring means connecting said handles at their rear ends and normally spreading said handles into divergent relation, one of said handles having a semi-tubular jaw on its forward end of a diameter sufficiently small to fit the smallest diameter tube to be held lengthwise, the other handle having a semi-tubular jaw larger in diameter than and facing the first mentioned jaw, the second mentioned jaw being sufficiently large in diameter to fit the largest diameter tube to be held lengthwise, and means for holding said jaws compressed in opposite sides of a tube positioned lengthwise therebetween.

4. A holder for neon tubes or the like comprising a pair of longitudinally elongated coextensive handles, spring means connecting the rear ends of said handles and normally positioning said handles in spread relation, one of said handles having a semi-tubular jaw on its forward end with the concavity thereof facing the other jaw, said semi-tubular jaw terminating at its edges in cheeks reaching laterally beyond said one jaw and on opposite sides of the other jaw, the outer edges of said cheeks being formed with notches to receive a tube crosswise of said handles and in which the tube is clamped by the other handle when the handles are contracted, and means operating between said handles for holding said handles in contracted relation.

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The following references are of record in the file of this patent:

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